

WHAT IS CLAIMED IS:

sub 2/6

1. An apparatus for obtaining data on the three-dimensional shape comprising:
  - 5 a device for producing data on the three-dimensional shape of an object;
  - a display device for displaying an image based on the data produced by the producing device;
  - a viewpoint variator for changing a viewpoint of the image
  - 10 displayed on the display device; and
  - a position changer for changing the relative positional relationship between the object and the producing device in accordance with the viewpoint change of data on the three-dimensional shape by the viewpoint variator.
- 15 2. The apparatus according to claim 1, wherein the position changer changes the relative positional relationship between the object and the producing device in synchronism with the viewpoint change of the image by the viewpoint variator.
- 20 3. The apparatus according to claim 1, wherein the position changer changes the relative positional relationship between the object and the producing device after the confirmation of the viewpoint change of the image by the viewpoint variator.
- 25 4. The apparatus according to claim 1, wherein the position changer comprises a rotation stage for placing an object thereon, the rotation stage being rotated in accordance with the viewpoint change of the image by the viewpoint variator.
- 30 5. The apparatus according to claim 1, wherein the position changer comprises a manipulator for shifting the position of the producing device, the position of the producing device being shifted by the manipulator in accordance with the viewpoint change of the image by

the viewpoint variator.

6. The apparatus according to claim 1, further comprising a composer for combining pieces of data on the three-dimensional shape of the object inputted from the producing device from a plurality of  
5 directions so as to make up data on the three-dimensional shape on one coordinate system, wherein the display device displays the image based on the data on the three-dimensional shape combined by the composer.

7. An apparatus for obtaining data on the three-dimensional shape, comprising:

10 a device for producing data on the three-dimensional shape of an object;

a position changer for changing the relative positional relationship between the object and the producing device;

15 a display device for displaying an image based on the data produced by the producing device; and

a viewpoint variator for changing a viewpoint of the image displayed on the display device in accordance with the change of the relative positional relationship between the object and the producing device by the position changer.

20 8. The apparatus according to claim 7, wherein the viewpoint variator changes a viewpoint of the image in synchronism with the change of the relative positional relationship between the object and the producing device by the position changer.

25 9. The apparatus according to claim 7, wherein the viewpoint variator changes a viewpoint of the image after the confirmation of the change of the relative positional relationship between the object and the producing device by the position changer.

10. The apparatus according to claim 7, wherein the position changer comprises a rotation stage for placing an object thereon.

30 11. The apparatus according to claim 7, wherein the position

changer comprises a manipulator for shifting the position of the producing device.

12. An apparatus for obtaining data on the three-dimensional shape, comprising:

5 a device capable of changing its relative positional relationship with an object, for producing data on the three-dimensional shape of the object;

a display device for displaying an image based on the data produced by the producing device; and

10 a viewpoint variator for changing a viewpoint of the image displayed on the display device in accordance with the movement of the producing device to the object.

13. An apparatus for obtaining data on the three-dimensional shape comprising:

15 a camera for outputting image data of an object;

a display device for displaying an image of the object formed by data on the three-dimensional shape of the object based on the data outputted from the camera;

20 a viewpoint variator for changing a viewpoint of the image displayed on the display device; and

a position changer for changing the relative positional relationship between the object and the camera in accordance with the viewpoint change of data on the three-dimensional shape by the viewpoint variator.

25 14. The apparatus according to claim 13, wherein the position changer changes the relative positional relationship between the object and the camera in synchronism with the viewpoint change of the image by the viewpoint variator.

30 15. The apparatus according to claim 13, wherein the position changer changes the relative positional relationship between the object

and the camera after the confirmation of the viewpoint change of the image by the viewpoint variator.

16. The apparatus according to claim 13, wherein the position changer comprises a rotation stage for placing an object thereon, the rotation stage being rotated in accordance with the viewpoint change of the image by the viewpoint variator.

17. The apparatus according to claim 13, wherein the position changer comprises a manipulator for shifting the position of the camera, the position of the camera being shifted by the manipulator in accordance with the viewpoint change of the image by the viewpoint variator.

18. The apparatus according to claim 13, further comprising a composer for combining pieces of data on the three-dimensional shape of the object inputted from the camera from a plurality of directions so as to make up data on the three-dimensional shape on one coordinate system, wherein the display device displays the image based on the data on the three-dimensional shape combined by the composer.

19. An apparatus for obtaining data on the three-dimensional shape, comprising:

a camera for outputting image data of an object;

a position changer for changing the relative positional relationship between the object and the camera;

a display device for displaying an image of the object formed by data on the three-dimensional shape of the object based on the data outputted from the camera; and

a viewpoint variator for changing a viewpoint of the image displayed on the display device in accordance with the change of the relative positional relationship between the object and the camera by the position changer.

20. The apparatus according to claim 19, wherein the viewpoint

variator changes a viewpoint of the image in synchronism with the change of the relative positional relationship between the object and the camera by the position changer.

21. The apparatus according to claim 19, wherein the viewpoint  
5 variator changes a viewpoint of the image after the confirmation of the change of the relative positional relationship between the object and the camera by the position changer.

22. The apparatus according to claim 19, wherein the position changer comprises a rotation stage for placing an object thereon.

10 23. The apparatus according to claim 19, wherein the position changer comprises a manipulator for shifting the position of the camera.

24. An apparatus for obtaining data on the three-dimensional shape, comprising:

15 a camera capable of changing its relative positional relationship with an object, for outputting image data of an object;

a display device for displaying an image of the object formed by data on the three-dimensional shape of the object on the data outputted from the camera; and

20 a viewpoint variator for changing a viewpoint of the image displayed on the display device in accordance with the movement of the camera to the object.